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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,012	10/24/2003	Alex C. Toy	1023-288US01	9367
28863 7590 09/10/2007 SHUMAKER & SIEFFERT, P. A. 1625 RADIO DRIVE SUITE 300 WOODBURY, MN 55125			EXAMINER KAHELIN, MICHAEL WILLIAM	
			ART UNIT 3762	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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Office Action Summary	Application No. 10/693,012	Applicant(s) TOY ET AL.	
	Examiner Michael Kahelin	Art Unit 3762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-59 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-59 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-17 and 35-59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In regards to claim 1, "the medical device" and "a battery voltage" are inferentially included, rendering it unclear whether the elements are part of the claimed invention. If applicant is not claiming these elements, it is suggested to functionally recite these elements, such as "a wireless telemetry circuit adapted to communicate" and "a boost converter adapted to convert a battery voltage". Further, "inhibit pulse skipping" and "level of the battery voltage" are unclear because nothing has been set forth to provide pulse skipping or measure a battery voltage. In regards to claim 35, "inhibit pulse skipping" and "level of the battery voltage" are unclear because nothing has been set forth to provide pulse skipping or measure a battery voltage. In regards to claim 51, "a battery voltage" has been inferentially included, rendering it unclear whether the elements are part of the claimed invention, and "level of the battery voltage" is unclear because nothing has been set forth to measure a battery voltage.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 2, 10, 11, 14, 17-19, 27, 28, 31, 34-36, 43, 44, 47, 50, and 59 are rejected under 35 U.S.C. 102(e) as being anticipated by Lebel et al. (US.2003/0065370, hereinafter "Lebel").

5. In regards to claims 1, 18 and 35, Lebel discloses a programmer comprising a wireless telemetry circuit (76), a boost converter to convert a battery voltage to an operating voltage for the programmer (734), and a control circuit to inhibit pulse skipping by the boost converter based on a level of the battery voltage (par. 0245). The battery voltage (VAA) falling below a threshold deactivates the boost converter, thusly meeting the limitation of "pulse skipping" because no pulses are provided.

6. In regards to claims 2, 19 and 36, the Examiner is considering the "operating voltage" to be the "reset 556" signal (par. 0245) because it is a voltage at least indirectly provided by the boost converter (because the device is powered by the boost converter). As such, pulse skipping is activated when the operating voltage exceeds a threshold ("high", per par. 0245) value.

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7. In regards to claims 10, 27 and 43, the programmer comprises an antenna within the housing (par. 0088).

8. In regards to claims 11, 28 and 44, the device inhibits pulse skipping (provides pulses) when the battery voltage is above a threshold (par. 0245).

9. In regards to claims 14, 31 and 47, the device comprises a battery source (par. 0234).

10. In regards to claims 17, 34 and 50, the operating voltage is approximately 3.2V (par. 0235 and 0238).

11. In regards to claim 59, the device comprises a battery voltage monitor (par. 0245).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 1-59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kotowski et al. (US 6,055,168, hereinafter "Kotowski") in view of Lebel. Kotowski discloses the essential features of the claimed invention including the following:

15. In regards to claims 1, 3, 10, 14, 16, 18, 20, 27, 31, 33, 35, 37, 43, 47, 49, 51, 55, 57, and 59, Kotowski discloses a boost converter to convert a battery voltage to an operating voltage and a control circuit to inhibit pulse skipping by the boost converter based on a level of the battery voltage (col. 3, line 19-col. 4, line 8). Since the input (battery) voltage is used to select the gain, and the gain is used to inhibit pulse skipping, the disclosed pulse skipping is "based on a level of the battery voltage". Kotowski further discloses that pulse skipping is activated when the operating voltage exceeds a threshold and the boost converter is a fixed frequency switching mode boost converter (col. 3, line 30). Kotowski does not disclose that this voltage converter is used in a handheld programmer having an internal antenna in combination with a neurostimulator. Lebel teaches of a handheld programmer having an internal antenna in combination with a neurostimulator that utilizes a boost converter, such as the one disclosed by Kotowski, to efficiently provide the voltages needed to operate a device that is small and utilizes off-the-shelf batteries. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kotowski's invention by providing the voltage converter to a handheld programmer having an internal antenna in combination with a neurostimulator that utilizes a boost converter to

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provide the predictable results of efficiently providing the voltages needed to operate a device that is small and utilizes off-the-shelf batteries.

16. In regards to claims 2, 19, and 36, the boost converter activates pulse skipping when the operating voltage exceeds a threshold (col. 3, line 30).

17. In regards to claim 4, 21 and 38, a transistor couples the battery to the boost converter (Fig. 5, element 10). Because the battery voltage enforces the minimum gain, which is determined by the transistor-based switching of 10, Kotowski meets the claim language.

18. In regards to claims 13, 30, 46, and 54, pulse skipping is inhibited by limiting the level of the battery voltage applied to the boost converter (by switching per Fig. 5).

19. In regards to claims 5-9, 22-26, and 39-42, Kotowski's modified invention including modifying the voltage supplied to the boost converter based on the battery voltage, but does not disclose a comparator to actuate the transistor, or that the transistor is a MOSFET/MOSFET pair that transmits the battery voltage less a body diode/resistor voltage/external diode drop to the boost converter. It is well known in the electronic arts to utilize comparators to determine when values exceed thresholds with common off-the-shelf parts and to utilize MOSFET/MOSFET pairs that transmit the battery voltage less a body diode/resistor voltage/external diode drop to provide reliable switching with common off-the-shelf parts. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Kotowski's invention by providing a comparator to provide the predictable result of

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determining when the input value exceeds a threshold with common off-the-shelf parts and to utilize a MOSFET/MOSFET pair that transmits the battery voltage less a body diode/resistor voltage/external diode drop to provide the predictable result of providing reliable switching with common off-the-shelf parts.

20. In regards to claims 11, 15, 32, 48, 28, 44, 52 and 56, Kotowski discloses the essential features of the claimed invention including modifying the gain of the boost converter based on the battery voltage (col. 3, line 60), but does not explicitly disclose that this gain modification (pulse skipping inhibition) is performed when the battery voltage exceeds a threshold, or utilizing two or more AA, AAA, C, or D batteries. However, it is well known in the art to utilize thresholds to modify parameters to provide various control functions with easy-to-implement circuits, and to provide portable devices with two or more AA, AAA, C, or D batteries to power various devices with readily available power sources. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Kotowski's invention by providing pulse skipping inhibition when the battery voltage exceeds a threshold to provide the predictable result of modifying a parameter to provide various control functions with easy-to-implement circuits, and to provide portable devices with two or more AA, AAA, C, or D batteries to provide the predictable result of powering various devices with readily available power sources.

21. In regards to claims 12, 17, 29, 34, 45, 50, 53, and 58, Kotowski's modified invention discloses the claimed invention but does not disclose expressly the claimed voltage ranges. It would have been an obvious matter of design choice to a person of

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ordinary skill in the art to modify the voltage converter as taught by Kotowski with the claimed ranges because applicant has not disclosed that these ranges provide an advantage, are used for a particular purpose, or solve a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the voltage converter as taught by Kotowski because both devices efficiently convert an input voltage to an output operational voltage. Therefore, it would have been an obvious matter of design choice to modify Kotowski's invention to obtain the invention as specified in the claims.

Response to Arguments

22. Applicant's arguments with respect to claims 1-59 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kahelin whose telephone number is (571) 272-8688. The examiner can normally be reached on M-F, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Sykes can be reached on (571) 272-4955. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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GEORGE R. EVANISKO
PRIMARY EXAMINER

8/30/7